WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising a sequence that encodes a functional NRIF3 nuclear hormone receptor co-activator, wherein the NRIF3 binds in a ligand dependent manner to thyroid hormone receptor (TR) and retinoid X receptor (RXR), but does not interact with retinoic acid receptor (RAR), vitamin D receptor (VDR), progesterone receptor (PR), glucocorticoid receptor (GR), and estrogen receptor (ER) in a yeast two hybrid assay system or *in vitro*, or both, which polypeptide contains an LxxIL (SEQ ID NO:2) module in its C-terminal domain.

2. An isolated nucleic acid according to claim 1, wherein said NRIF3 has an amino acid sequence as depicted in SEQ ID NO:4 (Figure 2).

3. An isolated nucleic acid according to claim 2, which has a nucleotide sequence as depicted in SEQ ID NO:3 (Figure 2).

4. A vector comprising the nucleic acid according to claim 1, wherein said sequence that encodes NRIF3 is operatively associated with an expression control sequence.

5. The vector according to claim 4 which is a plasmid.

6. A cell transfected with the vector according to claim 4.

7. The cell according to claim 6 which is a eukaryotic cell.

8. The cell according to claim 7, which is a yeast cell.

9. A method for producing NRIF3 comprising culturing the cell according to claim 6 under conditions that permit expression of NRIF3.

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10. A nucleic acid of at least twenty bases hybridizable under stringent conditions with a nucleic acid having a sequence as depicted in SEQ ID NO:3 (Figure 2).

11. An isolated functional NRIF3 nuclear hormone receptor co-activator, wherein the NRIF3 binds in a ligand dependent manner to thyroid hormone receptor (TR) and retinoid X receptor (RXR), but does not interact with retinoic acid receptor (RAR), vitamin D receptor (VDR), progesterone receptor (PR), glucocorticoid receptor (GR), and estrogen receptor (ER) in a yeast two hybrid assay system or *in vitro*, or both, which polypeptide contains an LxxIL (SEQ ID NO:2) module in its C-terminal domain.

12. The isolated NRIF3 according to claim 11, wherein said NRIF3 has an amino acid sequence as depicted in SEQ ID NO:4 (Figure 2).

13. An antibody that specifically binds to the NRIF3 according to claim 11.

14. The antibody according to claim 13 which is a polyclonal antibody.

15. A test system comprising the recombinant cell of claim 7, wherein the cell expresses a thyroid hormone receptor or a retinoid X receptor.

16. The test system according to claim 15, wherein the cell further comprises a reporter gene under control of an expression sequence modulated by NRIF3.

17. The test system of claim 16, wherein the reporter gene is selected from the group consisting of green fluorescent protein, lacZ, cat, and luciferase.

18. A method for identifying a compound that modulates thyroid hormone receptor or retinoid X receptor, which method comprises detecting modulation of expression of the reporter protein in the system of claim 16 by the cell contacted with the compound.

19. A method for identifying a compound that modulates NFIR3 interaction with nuclear hormone receptor, which method comprises detecting modulation of interaction of NFIR3 and TR or RXR in the presence of the compound.

20. The method according to Claim 19, wherein modulation of interaction occurs in a yeast two-hybrid system.